

Effects of heavy and soft music psychology essay



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Music has always had affects on human emotion. Music can make anyone feel anything. However, music might have a hidden effect. This is referring to the human cardiopulmonary system. Heart rate is the amount of times the heart pumps blood in one minute. Blood pressure is how hard the blood is pumped through arteries. This is important because one way to gauge a person's health is to look at heart rate and blood pressure. Higher blood pressure could mean the heart is working harder than it is supposed to or there is a clot somewhere. The frequency and the intensity of the music has been associated with the rise of blood pressure found in the study done by Sakamoto in the *The Journal of Sound and Vibration*. There are differences in the type of music (loud and soft) that is played and the heart rate of the individual listening to it like metal or screamo (in this experiment however it will be Merzbow, which is just loud noise and Mozart which is relatively melancholy) (Sakamoto 2002). Now the opposite hypothesis can be made also. That soft music with a steady tempo can lower blood pressure and heart rate. This is found out by listening to classical genre of music, such as Mozart in this experiment. However, we do not know this is the case. At the University of California, San Diego, they proposed that listening to music would reduce post-stress blood pressure elevations (Chafin et al. 2004). So music could have an effect after a person already has or experienced high heart rate or blood pressure. There is a studying at Hiroshima University, that used the same technique used in this experiment. They used both excitative music and sedative music. What they found out is that excitative music raised heart rate and sedative music lowered it, but if it was a favorite genre, then the heart rate will always go down (Iwanaga and Moroki 1999). The hypothesis that the group doing this experiment is that the heart rate

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and blood pressure will not really change at all in the environment that that experiment is taking place(the lab room). However, my hypothesis is that the louder and the more disorganized the music, the higher the blood pressure and heart rate as showing in Sakamoto's experiment with loud music with high intensity peaks(Sakamoto 2002). The softer and more organized the music, heart rates and blood pressure would decrease as shown in the study by Iwanaga and Moroki when they tested sedative music that lowered heart rate(Iwanaga and Moroki 1999). This experiment is relevant to real life due to the fact that medical doctors can be using music as therapy to help lower heart rates and to allow people relax in modern medicine. If there is a way for music to control heart rate and blood pressure, it could be used as a treatment for heart diseases or just trying to bring down a high heart rate and blood pressure during a procedure.

Materials and Methods:

This experiment did not have very many materials that needed to be used. There was a stop watch(minute, second, millisecond), a blood pressure cuff(sphygmomanometer), speakers, and an ipod with an assortment of music genre(however only two songs were used in this experiment(Merzbow " Noise" and Mozart)). First off, you would put the pressure cuff onto one of the people in the paired up groups and allow them to settle. After that is done, the music is turned on(first run is soft music(in this case, Mozart)). When 30 seconds elapses, a measurement of the blood pressure and heart rate needs to be taken by pumping the sphygmomanometer up to 150 mm Hg and then stop to allow the pressure to be released for the machine to get a reading. When the sphygmomanometer shows a reading, record the heart

rate and blood pressure(systolic over diastolic). And then repeat the entire process again at 90 seconds. After the data is recorded and the ipod is reset, the cuff is put on the other partner and the process is repeated while using the harder music(in this case, Merzbow). The second group however, has a run with hard music for the first two minutes then soft music for the last two minutes. The variables are the music and the order it is played. Also the different heart rates and blood pressure between each person. Three basal readings were taken and they are: HR1: 80, BP1: 146/80, HR2: 84, BP2 143/87, HR3 85, BP3 122/75.(HR- heart rate, BP, blood pressure(systolic/diastolic)) After the other readings are taken, there is a t test taken to see if any of the readings had statistical value using a TI-83 plus graphing calculator that has a simple sample t test program on it.

Results:

This experiment was to test the effects of music on heart rate and blood pressure. The results that came up after the experiment was over is that despite the type of music played in either order, the values of heart rate and blood pressure went down. During the experiment, the heart rate of most people were high, probably due to the stress of class. However, as the music started playing(either type of music Merzbow or Mozart) the heart rate and blood pressure went down in general. However, there was a more significant drop when the classical music was played. The graphs and the table show averaged data points from the raw data.

Group 1

Group 2

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Basal

Heart Rate

76.85

74.56

Systolic

114.33

111.83

Diastolic

70.47

70.14

T Test

Mozart(1st)

Merzbow(1st)

Heart Rate

0h 0m 30s

66.56

0h 0m 30s

65. 92

Noise

0h 1m 30s

69. 73

0h 1m 30s

67. 17

0h 0m 30s

Merzbow(2nd)

Mozart(2nd)

HR

$t = 0.4866$

0h 0m 30s

67. 27

0h 0m 30s

64. 58

$df = 20$

standard error of difference = 4. 857

0h 1m 30s

67. 73

0h 1m 30s

65. 58

SBP

$t = 0. 1883$

Systolic

Mozart(1st)

Merzbow(1st)

$df = 10$

0h 0m 30s

111. 89

0h 0m 30s

113. 17

standard error of difference = 4. 827

0h 1m 30s

108. 55

0h 1m 30s

112.42

DBP

$t = 1.2785$

Merzbow(2nd)

Mozart(2nd)

$df = 10$

0h 0m 30s

111.45

0h 0m 30s

113.50

standard error of difference = 3.626

0h 1m 30s

110.73

0h 1m 30s

109.67

Diastolic

Mozart(1st)

Merzbow(1st)

0h 0m 30s

67. 90

0h 0m 30s

69. 43

0h 1m 30s

71. 27

0h 1m 30s

68. 83

Merzbow(2nd)

Mozart(2nd)

0h 0m 30s

74. 55

0h 0m 30s

69. 17

0h 1m 30s

71. 00

0h 1m 30s

69. 42

On some of the points on the data table (figure 1), especially the averaged heart rates actually got higher, but only after the heart rate dropped from the base basal ratings. Also in a few of the graphs (mainly figure 5), there had seem to be an increase in the readings, but as stated before this could be due to outliers. According to the T Test that is preformed and showed in figure 1, this is exactly the case.

Discussion:

This experiment was conducted in order to figure out the effects of music on heart rate and pressure on people. My hypothesis was that the louder, more disorganized music would raise heart rate and blood pressure. The softer, more organized music would lower it. The results of the experiment showed that this is not the case. On the contrary, all of the music seemed to have lowered the blood pressure and the heart rate. But there were some averaged values which showed a little higher blood pressure and heart rates but this can be discredited due to the already high blood pressure and heart rates of some people, and when you average together these outliers with the average group, it will raise the average up. However, there was a more significant decrease of heart rate and blood pressure when the Mozart was playing in general if looking at the raw data. This could have been from the environment and the allowance of being able to relax in a stressful

environment despite the music(i. e. being able to do nothing in a busy class room). The data showed that there were actually some higher blood pressures and heart rates. Another way to do this is to find people who are already relaxed and to measure their blood pressure and heart rate then. Then play music and see if there is a change when a variety of music is played. But according to Bernardi, Porta and Sleight meditative music can induce a relaxing effect which is actually corresponding to tempo(Bernardi et al. 2010). So if this was the case then the loud music should have the opposite effect as shown by Sakamoto's experiment where they tested high intensity peaks in music and how it raised blood pressure due to the intense variation(Sakamoto 2002). There was no change in the data that was recorded. The equipment could have not been calibrated since there is a need to calibrate the electronic machines every once in awhile. Also there needed to be a longer period of time to listen to the music. Two minutes to listen to a song is not likely to have a very big effect on anyone. The whole song should have been played to really see the effects of music. Lastly there needs to be more participants. Due to the low number of participants, there was not any statistically significant results as result of the t test. After this experiment the following conclusion can be inferred, that music does not have a predominant effect on heart rate and blood pressure and if there had to be a result, then all music would lower heart rate and blood pressure.

Work Cited

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